INTERSTITIAL HERNIA.[1]

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INTERSTITIAL hernia was described, probably for the first time, by Bartholini in 1661, although, from his writings, it is evident that his account is more or less ambiguous, and it was not until 1797 that the famous surgeon Jean Petit gave a more positive description of the affection. In the first quarter of the last century several varieties of interstitial hernia were described by Boyer, Hesselback, Astley Cooper, and Goyrand, while more recently Krönlein and Küster have occupied themselves with the question. The term of hernia interparietalis is due to Malgaigne, but he only goes so far as to say that the hernia is placed between the layers of the abdominal parietes. Finally, these herniæ were divided into three classes, as follows:

(1) Properitoneal inguinal hernia, situated between the parietal peritoneum and the fascia of the transversalis;

(2) Interstitial inguinal hernia, seated in the layers of the abdominal wall;

(3) Superficial inguinal hernia, found between the superficial fascia and the external oblique muscle.

The second type here mentioned can be divided into four subvarieties, according to the four possible locations of the hernia to which special names have been given by Göbell. He, however, does not believe this nomenclature advisable because of the confusion it might create.

There is no doubt whatsoever in my mind that the so-called hernia interparietalis is a true hernia, because it is possessed of a hernial sac formed by the peritoneum, a ring, and a contents. The ring is composed of Poupart's ligament below, above by the free border of the internal oblique and transversalis, and inwardly by the rectus. In my own case the borders of the ring were smooth and tendinous in structure and was positively recognized as the internal inguinal ring. The sac simply contained a loop of small intestine, but in other cases reported the contents were composed of small intestine, the colon, omentum, cæcum, while in others the testicle, covered only by its tunica albuginea, was found deep down in the opening. The testicle has also been found free from the sac in a case recorded by Schindler and Steudner in which a gangrenous cæcum formed the contents of the hernia.

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As will be seen by the report of our case, we do not think we are in error in considering it to be an inguinal hernia. Inguino-interstitial hernia was first definitely described by Berger, and, since this type remains within the limits of the external inguinal ring, it was suggested to call it hernia intrainguinalis. It is evident from the literature of the subject that interstitial hernia, that is to say, located between the external oblique and fascia transversalis, has given rise to considerable discussion, perhaps in reality more than the subject deserves. In his statistics, Macready shows that only 0.93 per cent. of all hernias are of the interstitial variety, while Berger, out of 7151 cases of hernia, only found five of the interstitial variety, making only 0.07 per cent. It should, however, be remarked that interstitial hernia is of the greatest interest to the surgeon on account of its serious nature. Macready collected 169 cases of interparietal inguinal hernia and Göbell, 115. The latter collection deserves, perhaps, more notice, for it includes reducible as well as strangulated hernia, whereas Macready has only considered the reducible form.

The term of interstitial hernia has been employed in various senses, but many surgeons consider that only that form of hernia which lies between the external and internal oblique should be classified under this head, believing that other varieties are simply subdivisions of this group. We believe that Göbell is in the right when he considers that all herniæ lying between some layer of the abdominal wall are of the interstitial variety. Generally speaking, in a large majority of cases the diagnosis of interstitial hernia is attended with extreme difficulty, and, as far as the differential diagnosis is concerned, only fibroma need be thought of, because these growths are occasionally observed in this region, making their exit from the aponeurosis of the external oblique muscle. It is evident that the diagnosis of a hernia is made, but further than this it is difficult to decide the exact type with which one is dealing. The difficulty seems to lie in deciding whether one has to do with an inguinal or with a femoral hernia, and when the patient is a woman the diagnosis becomes still more faltering, because the frequency of the femoral variety in the female sex is well known. In our case the general appearance of the hernia, especially the large size of the external ring, rather led us to believe that the case was one of inguinal than femoral hernia. The presence of a typical inguinal hernia on one side and another hernia upon the other side is of importance because a relatively large number of cases have been recorded where the inguinal variety was present on one side and a femoral hernia on the other; and Berger found out of 10,000 operations for rupture that an inguinal upon one side and a femoral upon the other was present in 111 males and seventy females. Interparietal hernia is evidently more frequently met with in the male, and of the 115 cases collected by Göbell, only four were women; and it is well known that hernia in general is four times as frequent in the male as in the female.

Out of eleven cases of interstitial hernia collected up to the year 1900, not one was observed in the female; and I believe that Auvray, as far as I can learn, was the first to record a case of interstitial inguinal hernia in the female, and this he did in 1900; another case of the irreducible type in a young woman, operated upon by Helferich, was reported the next year by Müller. Fredet also reported a case in 1901. This year two more instances have been related by Brunco in his thesis, "Zwei Fälle linksseitiger interstitieller Hernie beim Weib," operated on by Glaser.

Since a large number of the interparietal type, and all the cases of the interstitial variety recorded up to this year (1904), have been associated with displacement or some anomaly of the testicle, these conditions were naturally looked upon as the cause of the particular form of rupture. Cryptorchidism was more particularly dealt with. Göbell has calculated that, of all the cases of interparietal hernia that he has been able to collect, 59.1 per cent. were cryptorchids, and that in his eleven cases of interstitial hernia all presented this anomaly. Retentions of the testis, whose relation with an abnormally narrow external inguinal ring will be considered later, can only be considered as an etiological factor of interparietal hernia in very rare instances, because only 10 per cent. of males afflicted with this condition presented this type of hernia; but Göbell, who makes this statement, refers, however, to certain congenital conditions as the origin of this form of rupture. He considers that all of his eleven cases of interparietal hernia, occurring between the external and internal oblique, were congenital. In one case recorded by Brunco, the patient stated that the hernia had been present exactly three years, but one should recall to mind that oftentimes an inguinal hernia may exist for many years in the female, and yet the patient's attention not be drawn to it; and then, again, one should recollect, as Lockwood has pointed out, that in exceptional cases a loop of mesentery may be inserted so high up and it may be so short that a complete extrusion of the gut through the rings would be practically an impossibility, in which case we are dealing with a so-called incomplete hernia. An internal inguinal ring with a very high situation has been recorded by Bramann in a case of an inguinal hernia lying between the external and internal oblique muscles, in a four-year-old boy. Close to the border of the ring the testicle was found. In another case recorded by Schmidt and Butz the internal ring was five centimetres higher up than normal, and quite on a level with the anterior superior iliac spine. In Kleeberg's case the internal ring was not distant more than five centimetres from the external. Schmidt attributes this anomaly to a defective situation in the insertion of the ligament of the kidney. Bramann takes it for granted that there is a displacement of the normally grown structures, especially in those instances where the lower border of the processus vaginalis only reaches as far as the aponeurosis of the external oblique muscle, and Berger has also mentioned abnormal conditions of the inguinal ring in females. From the resulting occlusion of the internal inguinal ring, it would appear that the narrowing of the external inguinal ring, which is so often observed, is the result of the changed condition of the internal. In the case which we report, the external inguinal ring was very large, perhaps I might say abnormally so; while, on the other hand, in a typical case of interstitial hernia recorded by Butz, the external ring was so small that the operator could not find it. Bull and Coley, in their article on Hernia in Dennis's " System of Surgery," state that in the female there may be a hydrocele of the canal of Nuck preventing the hernia from enlarging in the usual direction. This may be quite possible; but, so far as I am aware, no such case has been reported, unless the writers making this statement have had such instances under their observation, but of which they make no mention.

In the male, the narrowing of the external inguinal ring has been considered an obstacle for the complete descent of the testicle, and as a cause for the spreading out of the interparietal processus vaginalis behind the internal ring. In contrast to this, the herniæ, which interest us more especially, have presented, in cases where the rupture was reducible, an abnormally large external ring. Be that as it may, these conditions, especially in the female, are still most indefinite, and it would be well in the future if more detail were given in reference to them. The stretching and thinning of the aponeurosis of the external oblique, as observed in one of Brunco's cases, should not be in any way connected with the above-mentioned congenital defects, and, as he points out, was simply secondarily dependent upon the pressure of the hernia.

Göbell goes into every imaginable supposition in order to explain the formation of interparietal hernia, but these we will omit from discussion and will consider the process as it occurs in females. As obstacles to the centrifugal mobility of the hernial sac may be mentioned, firstly, the extreme obliquity of the inguinal canal or considerable loose tissue of the interstitial parts, thus predisposing the entrance of the hernial sac; secondly, a narrow external inguinal ring. The space between the aponeurosis of the external oblique and internal oblique forms a point of lesser resistance and would naturally be most favorable for the development of a hernia. It is almost surprising that not infrequently a hernia will push itself between the firm sheaths of the transversalis muscle and the fascia transversalis, and, in order to accomplish this, a rather powerful centripetal force must come into play.

Eppinger, who divides the inguinal canal into three portions, explains the frequency of inguinopropcritoneal hernia from the fact that there exist two especially weak spots in the last division of the canal, between the peritoneum and the fascia transversalis, thus favoring the development of a hernia between them.

Symptomatically, interstitial hernia forms an abdominal swelling when it makes its exit through the abdominal ring, or when the interparietal sac is greatly developed and contains a good sized contents. But it should be recalled to mind that there are instances of interstitial hernia where no tumefaction is present, as an example of which we may cite the inguinoproperitoneal variety.

Statistics show that interperitoneal inguinal hernia occurs about twice as often on the right as on the left; and among the eleven cases observed by Göbell of inguinal hernias seated between the external and internal oblique muscles, only three were found on the left side. This authority believes that for this reason one is dealing, at least in the case of males, with a congenital hernia, for the reason that this process is more frequent on the right than on the left side, because the right testicle descends at a later period, and for this reason the right processus vaginalis remains patent longer than on the left.

Relative to the age at which interperitoneal hernias have been observed, it may be said that in the male, at least, the subjects have varied in age from twenty to forty years,—in other words, during the time when, from work, intra-abdominal pressure is apt to be the greatest. One case in a boy four years of age has been recorded. On the other hand, in females with interstitial hernia, the patients have, in most cases, been over fifty, although there is no hard and fast rule, for many cases have been recorded in younger females and even in little girls, as in our case; and it is my impression that Mr. Bland-Sutton has recorded a case in a female infant four months old, although I am unable at the present time to find a reference to it.

The sac of an interstitial hernia may be single or bilocular; in the latter instance there will be a hernial sac in the inguinal canal, and another in the interstitial tissue of the abdominal wall.

The prognosis of interstitial herniæ which have not been operated upon is decidedly more unfavorable than that of inguinal hernia in general, because in the former their anatomical make-up renders them far more liable to strangulation, and 50 per cent. of Göbell's cases were examples of incarcerated hernia. From these facts, therefore, it is evident that the only proper therapeutic measure is a radical operation, and the longer such hernias are allowed to go on without operation, especially if they are wearing a truss, the more unfavorable will become the operative prognosis.

No absolute rule can be laid down as to the technique to be employed, because the anatomical conditions will vary somewhat from one case to another, and it is evident that the operation will usually be to some extent a complicated one. A very complicated method for the radical cure of interstitial hernia has been suggested by Berger, who alternately sutures the muscles and layers of fascia over one another, the sheath of the rectus being drawn over in order to add strength. After a vertical separation of the anterior abdominal wall, the structures are brought over below and outward, and this muscular transplantation is completed by several layers of buried sutures. Delorme and Championnière have each described their personal methods, which space will forbid us from considering, and we will now briefly give the history of our case.

The patient, a well-developed girl nine years of age, was referred to us in August, 1904, by Dr. Robert D. Scales, of Dorchester, for a right-sided inguinal hernia. The patient had been passing her vacation in the country, when suddenly, one afternoon, she was taken with severe intra-abdominal pain, which was diagnosed at the time by a local physician as being due to appendicitis. The child was put to bed, the pain gradually subsided during the night, and the next day she was well again. From the subsequent findings at the operation, it was evident that she had suffered from a partial strangulation, but from the recumbent posture the gut had probably slipped back into the abdominal cavity, and no further disturbance arose.

Examination showed a normally developed, well-nourished girl, with excellent muscular development. Lungs and heart normal; abdominal viscera normal. In the right inguinal region, a tumefaction, the size of a small hen's egg, was to be seen extending downward towards the labium majorum, more or less pear-shaped. With the patient standing up, a distinct impulse could be felt on coughing, and when the child was placed in a decubitus the swelling could be readily reduced. After reduction, the tip of the index-finger could be easily inserted through the external inguinal ring up the canal. Upon requesting the patient to stand up, another tumefaction was observed to occur somewhat above the inguinal hernia, and appeared to occupy the abdominal parietes. Impulse could be detected in this tumor when the patient coughed, and it also disappeared when she assumed a recumbent position.

This second tumefaction appeared at about the middle of Poupart's ligament, and when slight pressure was used it was made to disappear within the abdomen, accompanied by a slight gurgling. On deep pressure one was able to discover a rather oval gap at the site of the swelling, which easily admitted two fingers; and by exploration it was discovered that above and externally it appeared to be surrounded by rather tough bands of what appeared to be adhesions, while below the pubic bone formed its lower boundary. The pelvic vessels were felt directly below the lateral angle of this gap. Extending from the tuberosity of the pubis, a second gap, with sharply defined borders and triangular in shape, could be detected and easily admitted one finger.

The tumefaction above that of the inguinal hernial swelling could only be produced when the patient stood up and coughed, so that a considerable amount of intra-abdominal pressure was brought to bear. When this was done the protrusion appeared at first to be directed towards the median line; but if the intra-abdominal pressure was still continued, it deviated laterally. It could only be replaced when the patient was in a recumbent position, and this was accompanied by the characteristic gurgle, proving that the contents was composed of intestine.

An incision carried downward towards the external inguinal ring about eight centimetres long was made, and, after the skin and superficial fascia were separated, the aponeurosis of the external oblique became visible and contained several longitudinal sulci parallel with Poupart's ligament. The external inguinal ring was not very distinctly defined. After slitting up the aponeurosis of the external oblique, the hernial sac immediately bulged out and, so to speak, unfolded itself from under the aponeurosis, and was found to extend above the internal oblique and downward underneath the aponeurosis. The sac was adherent to the superficial fascia at the level of the internal ring, and after freeing it from the internal oblique the transversalis appeared to have no adhesion with it. A lipoma was found connected with the hernial sac and was adherent to the fascia and symphysis pubis. This was separated, and a fairly well developed round ligament was discovered attached to it. The sac was then with some difficulty dissected away from all the surrounding parts, and when this had been accomplished it was found that it extended through the transversalis, forming an opening large enough to admit two fingers. Within the hernial sac three small lipomata were found, while the contents consisted of a loop of small intestine.

It was evident that the internal inguinal ring lay to the side in an abnormal position, and when the sac had been completely isolated and spread out, it was closed with catgut sutures and excised. The stump was allowed to drop back into the abdomen, and the transversalis was sutured to the border of the aponeurosis of the external oblique down to the sheath of the rectus, while the internal oblique was sutured to the upper border of the aponeurosis of the external oblique, and the lower border was brought over upward upon the aponeurosis, so that there were four rows of buried sutures overlying the hernial opening.

The after events were simple, and the patient was discharged well at the end of three weeks.

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